CLAIM AMENDMENTS

1. (original) A method for efficient battery use by a handheld multiple function device, the method comprises:

monitoring at least one output for an overload condition;

monitoring a system voltage produced by a DC-to-DC converter for a system low voltage condition;

monitoring voltage of the battery for a battery low voltage condition; and

enabling one of a plurality of fail safe algorithms based on when one or more of the overload condition, the system low voltage condition, and the battery low voltage condition are detected.

2. (original) The method of claim 1, wherein the enabling one of the plurality of fail safe algorithms further comprises:

when the overload condition is detected and when the system low voltage condition and the battery low voltage condition are not detected, enabling a first fail safe algorithm of the plurality of fail safe algorithms to:

disable the at least one output for a predetermined period of time;

after expiration of the predetermined period of time, enable the at least one output; and

resume monitoring of the at least one output for the overload condition.

3. (original) The method of claim 1, wherein the enabling one of the plurality of fail safe algorithms further comprises:

when the system low voltage condition is detected and when the overload condition is not detected, enabling a second fail safe algorithm of the plurality of fail safe algorithms to:

disable the at least one output;

store current settings corresponding to execution of at least one functional algorithm; and

shutdown the handheld multiple function device.

4. (original) The method of claim 1, wherein the enabling one of the plurality of fail safe algorithms further comprises:

when the battery low voltage condition is detected, enabling a third fail safe algorithm of the plurality of fail safe algorithms to:

store essential current settings corresponding to execution of at least one functional algorithm; and

shut down the handheld multiple function device.

5. (original) The method of claim 1, wherein the monitoring the at least one output for the overload condition further comprises:

determining output current provided to the at least one output; and

when the output current exceeds a current threshold, identifying the overload condition.

6. (original) The method of claim 1, wherein the monitoring a system voltage produced by the DC-to-DC converter for a system low voltage condition further comprises:

determining loading on an output of the DC-to-DC converter that is providing the system voltage;

determining available power duration based on the loading and the voltage of the battery; and

when the available power duration is less than a power available threshold, indicating the system low voltage condition.

7. (original) The method of claim 1, wherein the enabling one of the plurality of fail safe algorithms further comprises:

when the system low voltage condition is detected and when the overload condition is not detected, enabling a second

fail safe algorithm of the plurality of fail safe algorithms to:

disable a portion of the handheld multiple function device;

store current settings corresponding to execution of at least one functional algorithm processed by the portion of the handheld multiple function device; and

continuing operation of the handheld multiple function device in a limited, low power consumption mode.

8. (original) A method for efficient battery use by a handheld multiple function device, the method comprises:

monitoring at least one output for an overload condition;

monitoring:

voltage of the battery for a battery low voltage condition, or

system voltage produced by a DC-to-DC converter for a system low voltage condition; and

enabling one of a plurality of fail safe algorithms based on when one or more of the overload condition, the system low voltage condition, and the battery low voltage condition are detected.

9. (original) The method of claim 8, wherein the enabling one of the plurality of fail safe algorithms further comprises:

when the overload condition is detected and when the system low voltage condition and the battery low voltage condition are not detected, enabling a first fail safe algorithm of the plurality of fail safe algorithms to:

disable the at least one output for a predetermined period of time;

after expiration of the predetermined period of time, enable the at least one output; and

resume monitoring of the at least one output for the overload condition.

10. (original) The method of claim 8, wherein the enabling one of the plurality of fail safe algorithms further comprises:

when the battery low voltage condition is detected, enabling a third fail safe algorithm of the plurality of fail safe algorithms to:

store essential current settings corresponding to execution of at least one functional algorithm; and

shutdown the handheld multiple function device.

11. (original) The method of claim 8, wherein the monitoring the at least one output for the overload condition further comprises:

determining output current provided to the at least one output; and

when the output current exceeds a current threshold, identifying the overload condition.

12. (original) A method for efficient battery use by a handheld multiple function device, the method comprises:

monitoring voltage of the battery for a battery low voltage condition;

monitoring a system voltage produced by a DC-to-DC converter for a system low voltage condition; and

enabling one of a plurality of fail safe algorithms based on when one or more of the system low voltage condition and the battery low voltage condition are detected.

13. (original) The method of claim 12, wherein the enabling one of the plurality of fail safe algorithms further comprises:

when the system low voltage condition is detected and when the overload condition is not detected, enabling a second fail safe algorithm of the plurality of fail safe algorithms to:

disable the at least one output;

store current settings corresponding to execution of at least one functional algorithm; and

shutdown the handheld multiple function device.

14. (original) The method of claim 12, wherein the monitoring a system voltage produced by the DC-to-DC converter for a system low voltage condition further comprises:

determining loading on an output of the DC-to-DC converter that is providing the system voltage;

determining available power duration based on the loading and the voltage of the battery; and

when the available power duration is less than a power available threshold, indicating the system low voltage condition.

15. (original) The method of claim 12, wherein the enabling one of the plurality of fail safe algorithms further comprises:

when the system low voltage condition is detected and when the overload condition is not detected, enabling a second fail safe algorithm of the plurality of fail safe algorithms to:

disable a portion of the handheld multiple function device;

store current settings corresponding to execution of at least one functional algorithm processed by the portion of the handheld multiple function device; and

continuing operation of the handheld multiple function device in a limited, low power consumption mode.

16. (original) An apparatus for efficient battery use by a handheld multiple function device, the apparatus comprises:

processing module;

memory operably coupled to the processing module, wherein the memory includes operational instructions that cause the processing module to:

monitor at least one output for an overload condition;

monitor a system voltage produced by a DC-to-DC converter for a system low voltage condition;

monitor voltage of the battery for a battery low voltage condition; and

enable one of a plurality of fail safe algorithms based on when one or more of the overload condition, the system low voltage condition, and the battery low voltage condition are detected.

17. (original) The apparatus of claim 16, wherein the memory further comprises operational instructions that

cause the processing module to enable one of the plurality of fail safe algorithms by:

when the overload condition is detected and when the system low voltage condition and the battery low voltage condition are not detected, enabling a first fail safe algorithm of the plurality of fail safe algorithms to:

disable the at least one output for a predetermined period of time;

after expiration of the predetermined period of time, enable the at least one output; and

resume monitoring of the at least one output for the overload condition.

18. (original) The apparatus of claim 16, wherein the memory further comprises operational instructions that cause the processing module to enable one of the plurality of fail safe algorithms by:

when the system low voltage condition is detected and when the overload condition is not detected, enabling a second fail safe algorithm of the plurality of fail safe algorithms to:

disable the at least one output;

store current settings corresponding to execution of at least one functional algorithm; and

shutdown the handheld multiple function device.

19. (original) The apparatus of claim 16, wherein the memory further comprises operational instructions that cause the processing module to enable one of the plurality of fail safe algorithms by:

when the battery low voltage condition is detected, enabling a third fail safe algorithm of the plurality of fail safe algorithms to:

store essential current settings corresponding to execution of at least one functional algorithm; and

shutdown the handheld multiple function device.

20. (original) The apparatus of claim 16, wherein the memory further comprises operational instructions that cause the processing module to monitor the at least one output for the overload condition by:

determining output current provided to the at least one output; and

when the output current exceeds a current threshold, identifying the overload condition.

21. (original) The apparatus of claim 16, wherein the memory further comprises operational instructions that cause the processing module to monitor a system voltage produced by the DC-to-DC converter for a system low voltage condition by:

determining loading on an output of the DC-to-DC converter that is providing the system voltage;

determining available power duration based on the loading and the voltage of the battery; and

when the available power duration is less than a power available threshold, indicating the system low voltage condition.

22. (original) The apparatus of claim 16, wherein the memory further comprises operational instructions that cause the processing module to enable one of the plurality of fail safe algorithms by:

when the system low voltage condition is detected and when the overload condition is not detected, enabling a second fail safe algorithm of the plurality of fail safe algorithms to:

disable a portion of the handheld multiple function device;

store current settings corresponding to execution of at least one functional algorithm processed by the portion of the handheld multiple function device; and

continuing operation of the handheld multiple function device in a limited, low power consumption mode.

23. (original) An apparatus for efficient battery use by a handheld multiple function device, the apparatus comprises:

processing module; and

memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to:

monitor at least one output for an overload condition;

monitor at least one of:

voltage of the battery for a battery low voltage condition, and

system voltage produced by a DC-to-DC converter for a system low voltage condition; and

enable one of a plurality of fail safe algorithms based on when one or more of the overload condition, the system low voltage condition, and the battery low voltage condition are detected.

24. (original) The apparatus of claim 23, wherein the memory further comprises operational instructions that cause the processing module to enable one of the plurality of fail safe algorithms by:

when the overload condition is detected and when the system low voltage condition and the battery low voltage condition are not detected, enabling a first fail safe algorithm of the plurality of fail safe algorithms to:

disable the at least one output for a predetermined period of time;

after expiration of the predetermined period of time, enable the at least one output; and

resume monitoring of the at least one output for the overload condition.

25. (original) The apparatus of claim 23, wherein the memory further comprises operational instructions that cause the processing module to enable one of the plurality of fail safe algorithms by:

when the battery low voltage condition is detected, enabling a third fail safe algorithm of the plurality of fail safe algorithms to:

store essential current settings corresponding to execution of at least one functional algorithm; and

shut down the handheld multiple function device.

26. (original) The apparatus of claim 23, wherein the memory further comprises operational instructions that cause the processing module to monitor the at least one output for the overload condition further comprises:

determining output current provided to the at least one output; and

when the output current exceeds a current threshold, identifying the overload condition.

27. (original) An apparatus for efficient battery use by a handheld multiple function device, the apparatus comprises:

processing module; and

memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to:

monitor voltage of the battery for a battery low voltage condition;

monitor a system voltage produced by a DC-to-DC converter for a system low voltage condition; and

enable one of a plurality of fail safe algorithms based on when one or more of the system low voltage condition and the battery low voltage condition are detected.

28. (original) The apparatus of claim 27, wherein the memory further comprises operational instructions that cause the processing module to enable one of the plurality of fail safe algorithms by:

when the system low voltage condition is detected and when the overload condition is not detected, enabling a second fail safe algorithm of the plurality of fail safe algorithms to:

disable the at least one output;

store current settings corresponding to execution of at least one functional algorithm; and

shutdown the handheld multiple function device.

29. (original) The apparatus of claim 27, wherein the memory further comprises operational instructions that cause the processing module to monitor a system voltage produced by the DC-to-DC converter for a system low voltage condition by:

determining loading on an output of the DC-to-DC converter that is providing the system voltage;

determining available power duration based on the loading and the voltage of the battery; and

when the available power duration is less than a power available threshold, indicating the system low voltage condition.

30. (original) The apparatus of claim 27, wherein the memory further comprises operational instructions that cause the processing module to enable one of the plurality of fail safe algorithms by:

when the system low voltage condition is detected and when the overload condition is not detected, enabling a second

fail safe algorithm of the plurality of fail safe algorithms to:

disable a portion of the handheld multiple function device;

store current settings corresponding to execution of at least one functional algorithm processed by the portion of the handheld multiple function device; and

continuing operation of the handheld multiple function device in a limited, low power consumption mode.